

Claims

1. A magnetic tape comprising a non-magnetic support,
a primer layer containing non-magnetic powder formed on a
5 surface of the non-magnetic support, a magnetic layer
containing magnetic powder formed on the upper surface of
the primer layer, and a backcoat layer containing non-
magnetic powder formed on the other surface of the non-
magnetic support, characterized in that

10 the magnetic powder comprises needle-like iron-based
magnetic particles,

the thickness of the magnetic layer is 0.09 μm or less,
and

15 the non-magnetic powder in the primer layer comprises
plate-like non-magnetic oxide particles with an average
particle size of 10 to 100 nm.

2. A magnetic tape according to claim 1, wherein the
needle-like iron-based magnetic particles have an average
20 major axis length of 20 to 60 nm.

3. A magnetic tape according to claim 2, wherein the
needle-like iron-based magnetic particles comprise 20 to 40
wt.% of cobalt, 10 to 30 wt.% of at least one element
25 selected from the group consisting of rare earth elements,
and 3 to 10 wt.% of aluminum.

4. A magnetic tape according to claim 3, wherein the

squareness ratio (B_r/B_s) of the magnetic layer in the lengthwise direction is 0.80 or more.

5 5. A magnetic tape according to any one of claims 1 to 4, wherein the plate-like non-magnetic oxide particles are of at least one oxide selected from the group consisting of cerium oxide, zirconium oxide, aluminum oxide, silicon oxide and iron oxide.

10 6. A magnetic tape according to any one of claims 1 to 5, wherein at least one of the primer layer and the backcoat layer contains plate-like conductive particles with an average particle size of 10 to 100 nm.

15 7. A magnetic tape according to any one of claims 1 to 6, wherein servo signals for use in control of tracking are recorded on the magnetic layer or the backcoat layer.

20 8. A magnetic tape comprising a non-magnetic support, a primer layer containing non-magnetic powder formed on a surface of the non-magnetic support, a magnetic layer containing magnetic powder formed on the upper surface of the primer layer, and a backcoat layer containing non-magnetic powder formed on the other surface of the non-magnetic support, characterized in that

25 the magnetic powder comprises needle-like iron-based magnetic particles,

 the thermal expansion coefficient of the magnetic

layer in the tape widthwise direction is $(0 \text{ to } 8) \times 10^{-6}/^{\circ}\text{C}$, and the humidity expansion coefficient of the magnetic layer in the tape widthwise direction is $(0 \text{ to } 10) \times 10^{-6}/\% \text{RH}$, and

5 the amount of edge weave which is formed on either of the edges of the tape serving as the side of reference for the feeding of the tape is $0.8 \text{ } \mu\text{m}$ or less.

10 9. A magnetic tape according to claim 8, wherein the needle-like iron-based magnetic particles have an average major axis length of 20 to 60 nm.

15 10. A magnetic tape cartridge comprising a box-shaped casing body, and one reel of a magnetic tape as defined in any one of claims 1 to 9, characterized in that the magnetic tape cartridge is tracked under the control of servo signals recorded on the magnetic tape.

20 11. A magnetic tape cartridge according to claim 10, wherein the servo signals are recorded as magnetic signals on the magnetic layer or the backcoat layer of the magnetic tape.

25 12. A magnetic tape cartridge according to claim 10, wherein the servo signals are recorded as optical signals on the backcoat layer of the magnetic tape.

13. A magnetic tape cartridge according to any one of

claims 10 to 12, wherein the magnetically recorded signals on the magnetic tape are reproduced by a reproducing head comprising magnetoresistance elements.